

# Question Paper

Exam Date & Time: 30-May-2024 (10:00 AM - 12:00 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

SIXTH SEMESTER BPT/BOT/B.Sc. (ESS/ RRT & DT / RT / MIT) / FOURTH SEMESTER B.Sc. (PFT / CVT / CND / MLT / HIM / BOPT / BAOTT / RT / EMT / PHYSICIAN ASSISTANT / PSYCHOLOGY / NMT) / EIGHT SEMESTER (BPT / BOT) /  
SECOND SEMESTER BASLP DEGREE EXAMINATION - MAY/JUNE 2024  
SUBJECT: BST3201 / STAT 402 / BST 3202 - BIOSTATISTICS AND RESEARCH METHODOLOGY / BIOSTATISTICS /  
BASIC BIOSTATISTICS AND RESEARCH METHODOLOGY  
(2016/2020/2022 SCHEME)

Marks: 50

Duration: 120 mins.

Answer all the questions.

- |     |  |     |
|-----|--|-----|
| 1A) | Elaborate graphical representation with examples.  | (5) |
| 1B) | Explain the properties of normal distribution with diagram.  | (5) |
| 2A) | Describe different types of clinical study designs.  | (5) |
| 2B) | Write short notes on non-probability sampling.   | (5) |
| 3A) | The triglycerides (serum) (in mg/dL) of 10 patients were as follows:<br>155, 150, 106, 89, 63, 68, 144, 125, 130, 74<br>Calculate mean, and standard for the above data. | (5) |
| 3B) | Define the following: (i) Incidence rate (ii) prevalence rate.   | (5) |
| 3C) | Discuss about regression analysis and its two equations.   | (5) |
| 3D) | Write short notes on research process.   | (5) |
| 4A) | Define skewness.   | (2) |
| 4B) | The following are the weights for 10 patients. Calculate range and mode 60, 54, 74, 82, 59, 63, 72, 89, 58, 85.  | (2) |
| 4C) | What is meant by systematic sampling?  | (2) |
| 4D) | Define scatter plot.   | (2) |
| 4E) | Define case report.  | (2) |

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# Question Paper

Exam Date & Time: 28-May-2024 (10:00 AM - 12:00 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

FOURTH SEMESTER BACHELOR OF OPTOMETRY DEGREE EXAMINATION - MAY/JUNE 2024  
SUBJECT: OPT2201 - OCULAR DISEASES - I  
(2020 SCHEME)

Marks: 50

Duration: 120 mins.

Answer all the questions.

- |     |   |      |
|-----|---|------|
| 1)  | Explain the clinical signs, diagnosis and management of bacterial conjunctivitis. | (10) |
| 2)  | Describe the etiology, clinical feature and management of fungal keratitis.       | (10) |
| 3A) | Explain the classification and clinical features of Ectropion.                    | (5)  |
| 3B) | Identify appropriate pathophysiology and clinical feature of Dacryocystitis.      | (5)  |
| 3C) | List the differentiating features between preseptal and orbital cellulitis.       | (5)  |
| 3D) | Explain the etiology and clinical features of posterior uveitis.                  | (5)  |
| 4A) | Mention any four signs of blepharitis.  | (2)  |
| 4B) | Which is the weakest orbital wall and what makes it weaker?                       | (2)  |
| 4C) | Write any two factors to differentiate scleritis and episcleritis.                | (2)  |
| 4D) | List any two aetiologies for scleritis.   | (2)  |
| 4E) | Write any two aetiologies of anterior uveitis.                                    | (2)  |

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# Question Paper

Exam Date & Time: 01-Jun-2024 (10:00 AM - 12:00 PM)



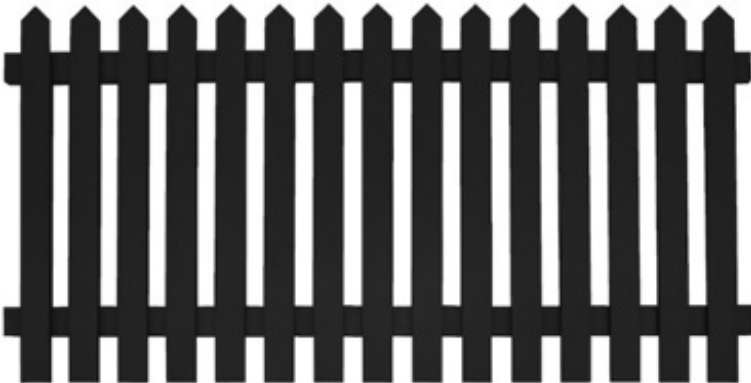
## MANIPAL ACADEMY OF HIGHER EDUCATION

FOURTH SEMESTER BACHELOR OF OPTOMETRY DEGREE EXAMINATION - MAY/JUNE 2024  
SUBJECT: OPT2202 - VISUAL PERCEPTION  
(2020 SCHEME)

Marks: 50

Duration: 120 mins.

Answer all the questions.

- 1) a) Describe the use of colour confusion lines in the design of colour vision tests. (10)  
b) Compare the spectral sensitivity curves and colour confusion lines in anomalous trichromacy and dichromacy.
- 2)  (10)
- The lines in a fence (like the one above) do not appear like a uniform grey from a distance, but the lines are distinguishable from near. Use the response properties of retinal and cortical cells to explain this perception of the fence.
- 3A) Define relative threshold? How does light adaptation affect threshold? (5)
- 3B) Define temporal sinusoid? Describe three factors that affect the visibility of temporal sinusoids. (5)
- 3C) Define minimum displacement threshold? Describe three uses for motion perception. (5)
- 3D) List the properties of foreground and background in perception? Demonstrate two ways in which faces are different from other objects for the perceptual system? (5)
- 4A) How does blur affect CSF? (2)
- 4B) Describe the relationship between threshold and sensitivity? (2)
- 4C) Describe the psychophysics of visual acuity testing using logMAR chart. (2)
- 4D) How can TMTF help in early diagnosis of glaucoma? (2)
- 4E) What is convergence and divergence in visual pathway? (2)

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# Question Paper

Exam Date & Time: 05-Jun-2024 (10:00 AM - 12:00 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

FOURTH SEMESTER BACHELOR OF OPTOMETRY DEGREE EXAMINATION - MAY/JUNE 2024  
SUBJECT: OPT2203 - OPTICAL DISPENSING - II  
(2020 SCHEME)

Marks: 50

Duration: 120 mins.

Answer all the questions.

- |     |   |      |
|-----|---|------|
| 1)  | Define the manufacturing process and explain in detail the steps involved in the manufacturing process. | (10) |
| 2)  | Write in detail on progressive lens design and its permanent marking with a neat diagram.               | (10) |
| 3A) | Write in detail about the principles of ARC with a neat diagram.  | (5)  |
| 3B) | Explain the ghost images and their types with a neat diagram.   | (5)  |
| 3C) | Write short note on D and Round top bifocal.  | (5)  |
| 3D) | Write briefly on different types of spectacle Bridge areas and Temples.                                 | (5)  |
| 4A) | Name the Methods of Inspecting the quality of lenses.   | (2)  |
| 4B) | Advantages of titanium frames.  | (2)  |
| 4C) | Deceased _____ value causes chromatic aberration and adding _____ minimizes chromatic aberration.       | (2)  |
| 4D) | How to differentiate between flint and crown glasses.   | (2)  |
| 4E) | Define Specific gravity and Refractive index and give example for each.                                 | (2)  |

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# Question Paper

Exam Date & Time: 07-Jun-2024 (10:00 AM - 12:00 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

**FOURTH SEMESTER BACHELOR OF OPTOMETRY DEGREE EXAMINATION - MAY/JUNE 2024**  
**SUBJECT: OPT2204 - OCULAR MICROBIOLOGY AND PHARMACOLOGY**  
**(2020 SCHEME)**

**Marks: 50**

**Duration: 120 mins.**

**Answer all the questions.**

- |     |   |      |
|-----|---|------|
| 1)  | Describe the detailed mechanism, indications, contraindications, usage and toxicology of cyclopentolate.  | (10) |
| 2)  | Describe the ideal properties of a contact lens solution. Compare one step and two step solutions in terms of their pharmacological properties. | (10) |
| 3A) | Describe 3 ocular pathogens, their type and the diseases that they cause.   | (5)  |
| 3B) | Explain the three ways in which anti-microbial agents act.  | (5)  |
| 3C) | Explain the different types of immunity.  | (5)  |
| 3D) | Write a mechanism of action of topical corticosteroids and mention commonly used topical steroids in eye care practice.                         | (5)  |
| 4A) | Name two drugs apart from fluorescein used in ocular diagnostics  | (2)  |
| 4B) | Name two contraindications for cycloplegics   | (2)  |
| 4C) | State the difference between anti histamine and mast cell stabilizer.   | (2)  |
| 4D) | Define pharmacokinetics and pharmacodynamics  | (2)  |
| 4E) | Two adverse reactions of topical anesthetics eye drops  | (2)  |

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# Question Paper

Exam Date & Time: 03-Jun-2024 (10:00 AM - 12:00 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

FOURTH SEMESTER BACHELOR OF OPTOMETRY DEGREE EXAMINATION - MAY/JUNE 2024  
SUBJECT: OPT2241 - PROGRAM ELECTIVE - I : MYOPIA CONTROL  
(2020 SCHEME)

Marks: 50

Duration: 120 mins.

Answer all the questions.

- |     |   |      |
|-----|---|------|
| 1)  | Describe in detail the various Optical interventions used to delay the progression of myopia. | (10) |
| 2)  | Explain the mechanism of action, uses and side effects of Atropine.                           | (10) |
| 3A) | Write in detail the various classifications of myopia.  | (5)  |
| 3B) | What are the clinical procedures expected to be done for a myopia workup?                     | (5)  |
| 3C) | What are the various theories related to myopia?  | (5)  |
| 3D) | Describe the significance of outdoor activities in myopic patients?                           | (5)  |
| 4A) | Name the instrument used to measure the axial length.   | (2)  |
| 4B) | What are the symptoms of myopia?  | (2)  |
| 4C) | Define Pseudo-myopia.   | (2)  |
| 4D) | What is progressive myopia?   | (2)  |
| 4E) | Write any 2 advantages of Orthokeratology treatment.  | (2)  |

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# Question Paper

Exam Date & Time: 03-Jun-2024 (10:00 AM - 12:00 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

**FOURTH SEMESTER BACHELOR OF OPTOMETRY DEGREE EXAMINATION - MAY/JUNE 2024**  
**SUBJECT: OPT2242 - PROGRAM ELECTIVE - I : VISUAL PSYCHOPHYSICS**  
**(2020 SCHEME)**

**Marks: 50**

**Duration: 120 mins.**

**Answer all the questions.**

- |     |  |      |
|-----|--|------|
| 1)  | Draw a flow chart of classification scheme of psychophysical experiments               | (10) |
| 2)  | Write a brief note about signal detection theory                                       | (10) |
| 3A) | Explain staircase test method  | (5)  |
| 3B) | Is Goldmann Applanation Tonometry (GAT) is a psychophysical test? Justify your answer. | (5)  |
| 3C) | What is the difference between detection and discrimination threshold?                 | (5)  |
| 3D) | What is the task and test procedure used in visual acuity test?                        | (5)  |
| 4A) | What is 2 alternative forced choice test means?  | (2)  |
| 4B) | What is threshold?   | (2)  |
| 4C) | Define Fechner's law   | (2)  |
| 4D) | Define Weber's law   | (2)  |
| 4E) | Explain the difference between adaptive and normal staircase                           | (2)  |

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